IN THE CLAIMS:

Please amend claims 1, 4 and 10, add claims 25 and 26, and cancel claims 3 and 11 as follows:

Claim 1. (currently amended) An encoding device for adding an error correction code parity to an input data sequence, comprising:

a first code encoding unit for adding a binary error correction code parity to each of a plurality of first data blocks into which the input data sequence is divided; and

a second code encoding unit for adding a symbol error correction code for correcting an error by a symbol unit of a predetermined length to each of a plurality of second data blocks into which the input data sequence is divided in a form different from that of the plurality of first data blocks,

wherein the number of bit errors to be corrected per total number of bits of the first data block to which the binary error correction code parity is added is larger than the number of bit errors to be corrected per total number of bits of the second data block to which the symbol error correction code parity is added;

wherein when a total number of bits of the first data block to which the binary error correction code parity is added is set to n, a minimum distance between codes of the first data block is set to d, a length of the second data block to which the symbol error correction code is added is set to N symbol, a minimum distance between codes of the second data block is D, and a total number of bits of the symbol is m, the first code encoding unit and the second code encoding unit respectively add the binary error correction code parity and the symbol error correction code parity to each of the plurality of first data block and second block to satisfy the following inequality:

$$\frac{d-1}{2n} > \frac{D-1}{2mN}.$$

Claim 2. (original) An encoding device according to claim 1, wherein the second code encoding unit selects partial data from each of the plurality of first data blocks to divide the input data sequence into the plurality of second data blocks.

Claim 3. (cancelled)

Claim 4. (currently amended) An encoding device according to ~~claim 3~~ claim 1, wherein when the total number of bits of the first data block is n,

and the total number of bits of the symbol is m, the first code encoding unit and the second code encoding unit respectively add the binary error correction code and the symbol error correction code to each of the plurality of first data block and second block where n is an integer multiple of m.

Claim 5. (original) An encoding device according to claim 1, wherein the first code encoding unit adds, as the binary error correction code parity, a code having an error detection function for a larger number of bit errors than the number of bit errors to be corrected by the binary error correction code parity.

Claim 6. (original) An encoding device according to claim 1, wherein concatenated codes are added in which each of the plurality of first data blocks becomes a connected part of the input data sequence, the first code encoding unit adds, as an inner code of the concatenated codes, the binary error correction code parity to the first data block, and the second code encoding unit adds, as an outer code of the concatenated codes, the symbol error correction code parity to the second data block.

Claim 7. (original) An encoding device according to claim 1, wherein the second code encoding unit adds, as the symbol error correction code parity, a Reed-Solomon code parity to the second data block.

Claim 8. (original) An encoding device according to claim 1, wherein the first code encoding unit adds, as the binary error code parity, a code having a burst error detection function to the first data block.

Claim 9. (original) An encoding device according to claim 8, wherein the binary error correction code parity is capable of double-bit error correction.

Claim 10. (currently amended) A decoding device for correcting errors of an encoded data sequence to which an error correction code parity is added, comprising:

a storage unit for storing the encoded data sequence;

a first error correction unit for correcting an error of each of a plurality of first data blocks, into which the encoded data sequence is divided, by minimum distance decoding of a binary error correction code; and

a second error correction unit for correcting an error of each of a plurality of second data blocks, into which the encoded data sequence is divided in a form different from that of the plurality of first data blocks, by minimum distance decoding of a symbol error correction code for error

correction by a symbol unit of a predetermined length,

wherein the number of bit errors to be corrected by the binary error correction code per total number of bits of the first data block is larger than the number of bit errors to be corrected by the symbol error correction code per total number of bits of the second data block;

wherein when a total number of bits of the first data block is set to n, a minimum distance between codes of the first data block is set to d, a length of the second data block is set to N symbol, a minimum distance between codes of the second data block is D, and a total number of bits of the symbol is m, the first error correction unit and the second error correction unit execute error correction by the binary error correction code and the symbol error correction code respectively to satisfy the following inequality:

$$\frac{d-1}{2n} > \frac{D-1}{2mN}.$$

Claim 11. (canceled)

Claim 12. (original) A decoding device for correcting errors of an encoded data sequence to which an error correction code is added, comprising:

a storage unit for storing the encoded data sequence;

a first error correction unit for correcting an error of each of a plurality of first data blocks, into which the encoded data sequence is divided, by minimum distance decoding of a binary error correction code;

a second error correction unit for correcting an error of each of a plurality of second data blocks, into which the encoded data sequence is divided in a form different from that of the plurality of first data blocks, by minimum distance decoding of a symbol error correction code for error correction by a symbol unit of a predetermined length;

a below bounded distance decoding control unit for causing the first error correction unit and the second error correction unit to respectively correct errors having smaller distance than limit error correction capabilities of the binary error correction code and the symbol error correction code; and

a bounded distance decoding control unit for causing, if determination is made that the errors are not corrected by the below bounded distance decoding control unit, each of the first error correction unit and the second error correction unit to correct errors by using the limit error correction

capability of each of the binary error correction code and the symbol error correction code.

Claim 13. (original) A decoding device according to claim 12, wherein the binary error correction code has a burst error detection function and a burst error correction function, the below bounded distance decoding control unit further causes the first error correction unit to detect burst errors, and the bounded distance decoding control unit further causes the first error correction unit to correct the burst errors.

Claim 14. (original) A decoding device according to claim 12, wherein the below bounded distance decoding control unit causes each of the first error correction unit and the second error correction unit to correct the errors of a distance smaller than the limit error correction capability by a predetermined number of times, and the bounded distance decoding control unit causes, if determination is made that the errors of the distance smaller than the limit error correction capability by the predetermined number of times are not corrected, each of the first error correction unit and the second error correction unit to correct the errors by using the limit error correction capability.

Claim 15. (original) An encoding method for adding an error correction code parity to an input data sequence, comprising:

a first code encoding step for adding a binary error correction code parity to each of a plurality of first data blocks into which the input data sequence is divided; and

a second code encoding step for adding a symbol error correction code for correcting an error by a symbol unit of a predetermined length to each of a plurality of second data blocks into which the input data sequence is divided in a form different from that of the plurality of first data blocks,

wherein the number of bit errors to be corrected per total number of bits of the first data block to which the binary error correction code parity is added is larger than the number of bit errors to be corrected per total number of bits of the second data block to which the symbol error correction code parity is added.

Claim 16. (original) A decoding method for correcting errors of an encoded data sequence to which an error correction code parity is added, comprising:

a storage step for storing the encoded data sequence;

a first error correction step for correcting an error of each of a

plurality of first data blocks, into which the encoded data sequence is divided, by minimum distance decoding of a binary error correction code; and

a second error correction step for correcting an error of each of a plurality of second data blocks, into which the encoded data sequence is divided in a form different from that of the plurality of first data blocks, by minimum distance decoding of a symbol error correction code for error correction by a symbol unit of a predetermined length,

wherein the number of bit errors to be corrected by the binary error correction code per total number of bits of the first data block is larger than the number of bit errors to be corrected by the symbol error correction code per total number of bits of the second data block.

Claim 17. (original) A decoding method for correcting errors of an encoded data sequence to which an error correction code is added, comprising:

a storage step for storing the encoded data sequence;

a first below bounded distance decoding step for executing error correction of minimum distance decoding by an under-limit error correction capability of a binary error correction code for each of a plurality of first data blocks into which the encoded data sequence is divided;

a second below bounded distance decoding step for executing error correction of minimum distance decoding by an under-limit error correction capability of a symbol error correction code for error correction by a symbol unit of a predetermined length for each of a plurality of second data blocks into which the encoded data sequence is divided in a form different from that of the plurality of first data blocks;

a determination step for determining whether the errors of the encoded data sequence are corrected or not in the first below bounded distance decoding step and the second below bounded distance decoding step; and

a bounded distance decoding step for executing, if determination is made that the errors of the encoded data sequence are not corrected, error correction of minimum distance decoding by a limit error correction capability of each of the binary error correction code and the symbol error correction code.

Claim 18. (original) A program for causing a computer to add an error correction code parity to an input data sequence, realizing by the computer:

a first code encoding unit for adding a binary error correction code parity to each of a plurality of first data blocks into which the input data sequence is divided; and

a second code encoding unit for adding a symbol error correction code for correcting an error by a symbol unit of a predetermined length to each of a plurality of second data blocks into which the input data sequence is divided in a form different from that of the plurality of first data blocks,

wherein the number of bit errors to be corrected per total number of bits of the first data block to which the binary error correction code parity is added is larger than the number of bit errors to be corrected per total number of bits of the second data block to which the symbol error correction code parity is added.

Claim 19. (original) A program for correcting errors of an encoded data sequence to which an error correction code is added by a computer, realizing by the computer:

a storage unit for storing the encoded data sequence;

a first error correction unit for correcting an error of each of a plurality of first data blocks, into which the encoded data sequence is divided, by minimum distance decoding of a binary error correction code; and

a second error correction unit for correcting an error of each of a plurality of second data blocks, into which the encoded data sequence is divided in a form different from that of the plurality of first data blocks, by minimum distance decoding of a symbol error correction code for error correction by a symbol unit of a predetermined length,

wherein the number of bit errors to be corrected by the binary error correction code per total number of bits of the first data block is larger than the number of bit errors to be corrected by the symbol error correction code per total number of bits of the second data block.

Claim 20. (original) A program for correcting errors of an encoded data sequence to which an error correction code is added by a computer, realizing by the computer:

storage unit for storing the encoded data sequence;

a first error correction unit for correcting an error of each of a plurality of the first data blocks, into which the encoded data sequence is divided, by minimum distance decoding of a binary error correction code;

a second error correction unit for correcting an error of each of a plurality of second data blocks, into which the encoded data sequence is divided in a form different from that of the plurality of first data blocks, by minimum distance decoding of a symbol error correction code for error correction by a symbol unit of a predetermined length;

a below bounded distance decoding control unit for causing the first error correction unit and the second error correction unit to respectively correct errors having smaller distance than limit error correction capabilities of the binary error correction code and the symbol error correction code; and

a bounded distance decoding control unit for causing, if determination is made that the errors are not corrected by the below bounded distance decoding control unit, each of the first error correction unit and the second error correction unit to correct errors by using the limit error correction capability of each of the binary error correction code and the symbol error correction code.

Claim 21. (original) A program recording medium for causing a computer to add an error correction code parity to an input data sequence, the program realizing by the computer:

a first code encoding unit for adding a binary error correction code parity to each of a plurality of first data blocks into which the input data sequence is divided; and

a second code encoding unit for adding a symbol error correction code for correcting an error by a symbol unit of a predetermined length to each of a plurality of second data blocks into which the input data sequence is divided in a form different from that of the plurality of first data blocks,

wherein the number of bit errors to be corrected per total number of bits of the first data block to which the binary error correction code parity is added is larger than the number of bit errors to be corrected per total number of bits of the second data block to which the symbol error correction code parity is added.

Claim 22. (original) A program recording medium for correcting errors of an encoded data sequence to which an error correction code is added by a computer, the program realizing by the computer:

a storage unit for storing the encoded data sequence;

a first error correction unit for correcting an error of each of a plurality of first data blocks, into which the encoded data sequence is divided, by minimum distance decoding of a binary error correction code; and

a second error correction unit for correcting an error of each of a plurality of second data blocks, into which the encoded data sequence is divided in a form different from that of the plurality of first data blocks, by minimum distance decoding of a symbol error correction code for error

correction by a symbol unit of a predetermined length,

wherein the number of bit errors to be corrected by the binary error correction code per total number of bits of the first data block is larger than the number of bit errors to be corrected by the symbol error correction code per total number of bits of the second data block.

Claim 23. (original) A program recording medium for correcting errors of an encoded data sequence to which an error correction code is added by a computer, the program realizing by the computer:

a storage unit for storing the encoded data sequence;

a first error correction unit for correcting an error of each of a plurality of the first data blocks, into which the encoded data sequence is divided, by minimum distance decoding of a binary error correction code;

a second error correction unit for correcting an error of each of a plurality of second data blocks, into which the encoded data sequence is divided in a form different from that of the plurality of first data blocks, by minimum distance decoding of a symbol error correction code for error correction by a symbol unit of a predetermined length;

a below bounded distance decoding control unit for causing the first error correction unit and the second error correction unit to respectively correct errors having smaller distance than limit error correction capabilities of the binary error correction code and the symbol error correction code; and

a bounded distance decoding control unit for causing, if determination is made that the errors are not corrected by the below bounded distance decoding control unit, each of the first error correction unit and the second error correction unit to execute error correction by using the limit error correction capability of each of the binary error correction code and the symbol error correction code.

Claim 24. (original) A data recording medium for recording an input data sequence and an error correction code added to the input data sequence, comprising:

a data sequence recording area for recording the input data sequence;

a first code recording area for recording a binary error code parity recorded corresponding to each of a plurality of first data blocks, into which the input data sequence is divided, and used for correcting an error of each of the plurality of first data blocks; and

a second code recording area for recording a symbol error correction

code parity recorded corresponding to each of a plurality of second data blocks, into which the input data sequence is divided in a form different from that of the plurality of first data blocks, and used for correcting an error of each of the plurality of second data blocks by a symbol unit of a predetermined length,

wherein the number of bit errors to be corrected per total number of bits of the first data block to which the binary error code parity is added is larger than the number of bit errors to be corrected per total number of bits of the second data block to which the symbol error correction code parity is added.

Claim 25. (new) An encoding method according to claim 15, wherein when a total number of bits of the first data block is set to n, a minimum distance between codes of the first data block is set to d, a length of the second data block is set to N symbol, a minimum distance between codes of the second data block is D, and a total number of bits of the symbol is m, the first error correction unit and the second error correction unit execute error correction by the binary error correction code and the symbol error correction code respectively to satisfy the following inequality:

$$\frac{d-1}{2n} > \frac{D-1}{2mN}.$$

Claim 26. (new) An decoding method according to claim 16, wherein when a total number of bits of the first data block is set to n, a minimum distance between codes of the first data block is set to d, a length of the second data block is set to N symbol, a minimum distance between codes of the second data block is D, and a total number of bits of the symbol is m, the first error correction unit and the second error correction unit execute error correction by the binary error correction code and the symbol error correction code respectively to satisfy the following inequality:

$$\frac{d-1}{2n} > \frac{D-1}{2mN}.$$